

CLAIMS

WHAT IS CLAIMED IS:

- 1 1. A composition for exfoliation agent comprising:
2 (a) a salt formed of hydrofluoric acid and a base containing no metal ion;
3 (b) one or more water soluble organic solvents;
4 (c) a sugar alcohol; and
5 (d) water,
6 wherein the pH of the composition is above 8, and the composition is
7 effective in exfoliating resist residues.

- 1 2. The composition of claim 1, wherein the said composition comprises:
2 0.001-1 % by weight of the composition of the salt formed of hydrofluoric
3 acid and a base containing no metal ion;
4 50-98 % by weight of the composition of the water soluble organic solvents;
5 0.01-10 % by weight of the composition of the sugar alcohol; and
6 balance of water.

- 1 3. The composition of claim 1, wherein the said composition comprises:
2 0.005-0.5 % by weight of the composition of the salt formed of hydrofluoric
3 acid and a base containing no metal ion;
4 60-95 % by weight of the composition of the water soluble organic solvents;
5 0.05-5 % by weight of the composition of the sugar alcohol; and
6 balance of water.

- 1 4. The composition of claim 1, wherein the said composition comprises:
2 0.05-0.3 % by weight of the composition of the salt formed of hydrofluoric
3 acid and a base containing no metal ion;
4 75-95 % by weight of the composition of the water soluble organic solvents;
5 0.1-3 % by weight of the composition of the sugar alcohol; and
6 balance of water.

- 1 5. The composition of claim 1, wherein the salt formed of hydrofluoric acid
2 and a base containing no metal ion is ammonium fluoride.

- 1 6. The composition of claim 1, wherein the sugar alcohol is xylitol.
- 1 7. The composition of claim 1, wherein the pH of the said composition is from
2 about 8.5 to about 10.
- 1 8. The composition of claim 1, wherein the composition further comprises a
2 surfactant in an amount sufficient to improve the wetting property of the composition.
- 1 9. A method of exfoliating the resist residues resulting from dry etching and
2 plasma ashing, comprising:
3 providing a substrate with resist residues resulting from dry etching and
4 plasma ashing;
5 contacting the substrate with the composition of claim 1 for a time and at a
6 temperature sufficient to cause the composition to substantially remove the resist residues;
7 and
8 rinsing the substrate.
- 1 10. A composition for exfoliation agent comprising:
2 (a) a salt formed of hydrofluoric acid and a base without metal ion;
3 (b) one or more water soluble organic solvents;
4 (c) a sugar alcohol;
5 (d) water; and
6 (e) hydrofluoric acid,
7 wherein the pH of the composition is above 8, and the composition is
8 effective in exfoliating resist residues.
- 1 11. The composition of claim 10, wherein the said composition comprises:
2 0.001-1 % by weight of the composition of the salt formed of hydrofluoric
3 acid and a base containing no metal ion;
4 50-98 % by weight of the composition of the water soluble organic solvents;
5 0.01-10 % by weight of the composition of the sugar alcohol;
6 0.001-1 % by weight of the composition of hydrofluoric acid; and
7 balance of water.
- 1 12. The composition of claim 10, wherein the said composition comprises:

2 0.005-0.5 % by weight of the composition of the salt formed of hydrofluoric
3 acid and a base containing no metal ion;
4 60-95 % by weight of the composition of the water soluble organic solvents;
5 0.05-5 % by weight of the composition of the sugar alcohol;
6 0.005-0.5 % by weight of the composition of hydrofluoric acid; and
7 balance of water.

1 13. The composition of claim 10, wherein the said composition comprises:
2 0.05-0.3 % by weight of the composition of the salt formed of hydrofluoric
3 acid and a base containing no metal ion;
4 75-95 % by weight of the composition of the water soluble organic solvents;
5 0.1-3 % by weight of the composition of the sugar alcohol;
6 0.05-0.3 % by weight of the composition of hydrofluoric acid; and
7 balance of water.

1 14. The composition of claim 10, wherein the salt formed of hydrofluoric acid
2 and a base containing no metal ion is ammonium fluoride.

1 15. The composition of claim 10, wherein the sugar alcohol is xylitol.

1 16. The composition of claim 10, wherein the pH of the said composition is
2 from about 8.5 to about 10.

1 17. The composition of claim 10, wherein the composition further comprises a
2 surfactant in an amount sufficient to improve the wetting property of the composition.

1 18. A method of exfoliating the resist residues resulting from dry etching and
2 plasma ashing, comprising:
3 providing a substrate with resist residues resulting from dry etching and
4 plasma ashing;
5 contacting the substrate with the composition of claim 10 for a time and at a
6 temperature sufficient to cause the composition to substantially remove the resist residues;
7 and
8 rinsing the substrate.